REV. 1

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
2030 Wright Avenue
Richmond, California 94804-3849
Phone (510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

May 29, 2008

Mr. Steve Trent
Fluor Hanford Inc.
1200 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #33677**
Eberline Services R8-04-102-7078, SDG H3688
R8-06-181-7078

Dear Mr. Trent:

Enclosed is an updated data report for two solid (soil) samples designated under SAF No. F08-043 received at Eberline Services on April 17, 2008. Results were originally reported on May 29, this report includes results for Se-79.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

REVISED
7-21-08

00000001

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3669 was composed of two solid (soil) samples designated under SAF No. F08-043 with a Project Designation of: 216-A-30 Crib Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. Selenium-79 analysis was order after results for the originally requested analyses were reported.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.3 Selenium-79 Analysis

Eberline Services does not maintain a stock of Se-79 activity with which to prepare laboratory control samples, as a consequence an LCS was not performed. No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion — 07/17/08

Melissa C. Mannion
Senior Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H3688

SDG	7078
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 33677
Case no	SDG_H3688

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3688

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 33677
Case no SDG H3688

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

LAB SAMPLE SUMMARY

SDG 7078
Contact Melissa C. Mannion

Client Hanford
Contract No. 33677
Case no SDG H3688

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R803100-08	Method Blank		SOLID		F08-043		
R804102-01	B1TH06	C5941, I-049	SOLID		F08-043	F08-043-151	03/31/08 10:20
R804102-02	B1V2L5	C5941, I-SSP-003	SOLID		F08-043	F08-043-179	03/26/08 14:15
R804102-03	Lab Control Sample		SOLID		F08-043		
R804102-04	Method Blank		SOLID		F08-043		
R804102-05	Duplicate (R804102-02)	C5941, I-SSP-003	SOLID		F08-043		03/26/08 14:15
R804102-06	Duplicate (R804102-02)	C5941, I-SSP-003	SOLID		F08-043		03/26/08 14:15

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 07/16/08

00000006

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

QC SUMMARY

SDG 7078
Contact Melissa C. Mannion

Client Hanford
Contract No. 33677
Case no SDG H3688

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7063		Method Blank	SOLID						R803100-08	7063-008
7078	F08-043-151	B1TH06	SOLID	95.1	120 g		04/17/08	17	R804102-01	7078-001
	F08-043-179	B1V2L5	SOLID	91.4	139 g		04/17/08	22	R804102-02	7078-002
		Method Blank	SOLID						R804102-04	7078-004
		Lab Control Sample	SOLID						R804102-03	7078-003
		Duplicate (R804102-02)	SOLID	91.4	139 g		04/17/08	22	R804102-05	7078-005
		Duplicate (R804102-02)	SOLID	91.4	139 g		04/17/08	22	R804102-06	7078-006

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 07/16/08

00000007

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

SDG 7078
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 33677
Case no SDG H3688

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
TH	SOLID	Thorium, Isotopic in Solids	6150-020	8.0	2			1	1	1/1		
Beta Counting												
TC	SOLID	Technetium 99 in Solids	6150-020	13.2	2			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Solids	6150-020	10.0	2			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6150-020	11.2	2			1	1	1/1		
SE_L	SOLID	Selenium 79 in Solids	6145-169	11.2	2			1		1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

SDG 7078
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 33677
Case no SDG H3688

LAB SAMPLE / COLLECTED / RECEIVED	CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R803100-08	Method Blank			7063-008	SE_L		07/09/08	07/15/08	BW	Selenium 79 in Solids
			SOLID							
		F08-043								
R804102-01	B1TH06			7078-001	H		05/16/08	05/20/08	BW	Tritium in Solids
03/31/08	C5941, I-049		SOLID	7078-001	NI_L		05/20/08	05/22/08	BW	Nickel 63 in Solids
04/17/08	F08-043-151	F08-043		7078-001	SE_L		07/09/08	07/15/08	BW	Selenium 79 in Solids
				7078-001	TC		05/20/08	05/21/08	BW	Technetium 99 in Solids
				7078-001	TH		05/13/08	05/14/08	BW	Thorium, Isotopic in Solids
R804102-02	B1V2L5			7078-002	H		05/16/08	05/20/08	BW	Tritium in Solids
03/26/08	C5941, I-SSP-003		SOLID	7078-002	NI_L		05/20/08	05/22/08	BW	Nickel 63 in Solids
04/17/08	F08-043-179	F08-043		7078-002	SE_L		07/09/08	07/15/08	BW	Selenium 79 in Solids
				7078-002	TC		05/21/08	05/21/08	BW	Technetium 99 in Solids
				7078-002	TH		05/13/08	05/14/08	BW	Thorium, Isotopic in Solids
R804102-03	Lab Control Sample			7078-003	H		05/16/08	05/20/08	BW	Tritium in Solids
			SOLID	7078-003	NI_L		05/20/08	05/22/08	BW	Nickel 63 in Solids
		F08-043		7078-003	TC		05/19/08	05/21/08	BW	Technetium 99 in Solids
				7078-003	TH		05/13/08	05/14/08	BW	Thorium, Isotopic in Solids
R804102-04	Method Blank			7078-004	H		05/16/08	05/20/08	BW	Tritium in Solids
			SOLID	7078-004	NI_L		05/20/08	05/22/08	BW	Nickel 63 in Solids
		F08-043		7078-004	TC		05/21/08	05/21/08	BW	Technetium 99 in Solids
				7078-004	TH		05/13/08	05/14/08	BW	Thorium, Isotopic in Solids
R804102-05	Duplicate (R804102-02)			7078-005	H		05/16/08	05/20/08	BW	Tritium in Solids
03/26/08	C5941, I-SSP-003		SOLID	7078-005	NI_L		05/20/08	05/22/08	BW	Nickel 63 in Solids
04/17/08		F08-043		7078-005	TC		05/19/08	05/21/08	BW	Technetium 99 in Solids
				7078-005	TH		05/13/08	05/14/08	BW	Thorium, Isotopic in Solids
R804102-06	Duplicate (R804102-02)			7078-006	SE_L		07/09/08	07/15/08	BW	Selenium 79 in Solids
03/26/08	C5941, I-SSP-003		SOLID							
04/17/08		F08-043								

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 07/16/08

00000009

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

SDG 7078
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 33677
Case no SDG H3688

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
H	F08-043	Tritium in Solids	TRITIUM_COX_LSC	2			1	1	1	5
NI_L	F08-043	Nickel 63 in Solids	NI63_LSC	2			1	1	1	5
SE_L	F08-043	Selenium 79 in Solids	SE79_SEP_IE_LSC	2			1		1	4
TC	F08-043	Technetium 99 in Solids	TC99_TR_SEP_GPC	2			1	1	1	5
TH	F08-043	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	2			1	1	1	5
TOTALS				10			5	4	5	24

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 07/16/08

00000010

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7063-008 Method Blank

METHOD BLANK

SDG 7078	Client/Case no Hanford	SDG H3688	
Contact Melissa C. Mannion	Contract No. 33677		
Lab sample id R803100-08	Client sample id Method Blank		
Dept sample id 7063-008	Material/Matrix	SOLID	
	SAF No F08-043		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Selenium-79	15758-45-9	-0.151	2.0	3.36	10.0	U	SE_L

216-A-30 Crib Sampling

QC-BLANK #66278

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7078-004 Method Blank

METHOD BLANK

SDG 7078	Client/Case no Hanford	SDG H3688	
Contact Melissa C. Mannion	Contract No. 33677		
Lab sample id R804102-04	Client sample id Method Blank		
Dept sample id 7078-004	Material/Matrix	SOLID	
	SAF No F08-043		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.600	3.3	5.71	400	U	H
Nickel 63	13981-37-8	0.342	1.7	2.93	30.0	U	NI_L
Technetium 99	14133-76-7	0.169	0.31	0.518	12.0	U	TC
Thorium 228	14274-82-9	-0.034	0.068	0.150	1.00	U	TH
Thorium 230	14269-63-7	-0.059	0.10	0.225	1.00	U	TH
Thorium 232	TH-232	0	0.034	0.081	1.00	U	TH

216-A-30 Crib Sampling

QC-BLANK #65551

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7078-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7078
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3688
Contract No. 33677

Lab sample id R804102-03
Dept sample id 7078-003

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F08-043

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	782	17	5.45	400		H	820	33	95	84-116	80-120
Nickel 63	251	6.2	3.01	30.0		NI_L	266	11	94	83-117	80-120
Technetium 99	110	2.6	0.552	12.0		TC	120	4.8	92	81-119	80-120
Thorium 230	38.0	1.9	0.235	1.00		TH	40.0	1.6	95	85-115	80-120

216-A-30 Crib Sampling

QC-LCS #65550

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 07/16/08

00000013

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7078-005 B1V2L5

DUPLICATE

SDG	7078			Client/Case no	Hanford SDG H3688
Contact	Melissa C. Mannion			Contract	No. 33677
	DUPLICATE		ORIGINAL		
Lab sample id	R804102-05	Lab sample id	R804102-02	Client sample id	B1V2L5
Dept sample id	7078-005	Dept sample id	7078-002	Location/Matrix	C5941, I-SSP-003 SOLID
		Received	04/17/08	Collected/Weight	03/26/08 14:15 139 g
% solids	91.4	% solids	91.4	Custody/SAF No	F08-043-179 F08-043

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	1.32	2.5	4.18	400	U	H	-1.15	2.4	4.25	U	-		1.4
Nickel 63	0.202	2.0	3.47	30.0	U	NI_L	0.613	2.1	3.51	U	-		0.3
Technetium 99	0.092	0.26	0.512	12.0	U	TC	0.022	0.24	0.518	U	-		0.4
Thorium 228	0.641	0.14	0.074	1.00		TH	0.646	0.16	0.149		1	52	0
Thorium 230	0.352	0.15	0.211	1.00		TH	0.382	0.14	0.199		8	86	0.3
Thorium 232	0.725	0.15	0.051	1.00		TH	0.649	0.13	0.061		11	47	0.7

216-A-30 Crib Sampling

QC-DUP#2 65552

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 07/16/08

00000014

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7078-006 B1V2L5

DUPLICATE

SDG	7078			Client/Case no	Hanford SDG H3688
Contact	Melissa C. Mannion			Contract	No. 33677
	DUPLICATE		ORIGINAL		
Lab sample id	R804102-06	Lab sample id	R804102-02	Client sample id	B1V2L5
Dept sample id	7078-006	Dept sample id	7078-002	Location/Matrix	C5941, I-SSP-003 SOLID
		Received	04/17/08	Collected/Weight	03/26/08 14:15 139 g
% solids	91.4	% solids	91.4	Custody/SAF No	F08-043-179 F08-043

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Selenium-79	1.11	1.9	3.21	10.0	U	SE_L	1.94	2.0	3.24	U	-		0.6

216-A-30 Crib Sampling

QC-DUP#2 66253

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	07/16/08

00000015

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7078-001 B1TH06

DATA SHEET

SDG	7078	Client/Case no	Hanford SDG H3688
Contact	Melissa C. Mannion	Contract	No. 33677
Lab sample id	R804102-01	Client sample id	B1TH06
Dept sample id	7078-001	Location/Matrix	C5941, I-049 SOLID
Received	04/17/08	Collected/Weight	03/31/08 10:20 120 g
% solids	95.1	Custody/SAF No	F08-043-151 F08-043

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.384	2.1	3.65	400	U	H
Nickel 63	13981-37-8	-0.416	1.9	3.25	30.0	U	NI_L
Selenium-79	15758-45-9	0.427	1.7	2.86	10.0	U	SE_L
Technetium 99	14133-76-7	0.148	0.28	0.533	12.0	U	TC
Thorium 228	14274-82-9	0.524	0.12	0.092	1.00		TH
Thorium 230	14269-63-7	0.498	0.16	0.213	1.00		TH
Thorium 232	TH-232	0.600	0.12	0.057	1.00		TH

216-A-30 Crib Sampling

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

7078-002 B1V2L5

DATA SHEET

SDG	7078	Client/Case no	Hanford SDG H3688
Contact	Melissa C. Mannion	Contract	No. 33677
Lab sample id	R804102-02	Client sample id	B1V2L5
Dept sample id	7078-002	Location/Matrix	C5941, I-SSP-003 SOLID
Received	04/17/08	Collected/Weight	03/26/08 14:15 139 g
% solids	91.4	Custody/SAF No	F08-043-179 F08-043

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-1.15	2.4	4.25	400	U	H
Nickel 63	13981-37-8	0.613	2.1	3.51	30.0	U	NI_L
Selenium-79	15758-45-9	1.94	2.0	3.24	10.0	U	SE_L
Technetium 99	14133-76-7	0.022	0.24	0.518	12.0	U	TC
Thorium 228	14274-82-9	0.646	0.16	0.149	1.00		TH
Thorium 230	14269-63-7	0.382	0.14	0.199	1.00		TH
Thorium 232	TH-232	0.649	0.13	0.061	1.00		TH

216-A-30 Crib Sampling

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	07/16/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

Test TH Matrix SOLID
SDG 7078
Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 33677
Contract SDG H3688

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 6150-020					
R804102-01			7078-001	B1TH06	0.498
R804102-02			7078-002	B1V2L5	0.382
R804102-03			7078-003	Lab Control Sample	ok
R804102-04			7078-004	Method Blank	U
R804102-05			7078-005	Duplicate (R804102-02)	ok
Nominal values and limits from method				RDLs (pCi/g)	1.00
216-A-30 Crib Sampling					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6150-020			2σ prep error 8.0 %		Reference Lab Notebook #6150, pg. 15											
R804102-01			B1TH06	0.213	0.250			90		847			43	05/13/08	05/13	SS-037
R804102-02			B1V2L5	0.199	0.250			92		847			48	05/13/08	05/13	SS-038
R804102-03			Lab Control Sample	0.235	0.250			86		846				05/13/08	05/13	SS-040
R804102-04			Method Blank	0.225	0.250			75		847				05/13/08	05/13	SS-042
R804102-05			Duplicate (R804102-02)	0.211	0.250			91		858			48	05/13/08	05/13	SS-065
Nominal values and limits from method				1.00	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.217 ± 0.028
YIELD 87 ± 14

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/08

00000018

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

Test TC Matrix SOLID
SDG 7078
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client Hanford
Contract No. 33677
Contract SDG H3688

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 6150-020						
R804102-01			7078-001	B1TH06	U	
R804102-02			7078-002	B1V2L5	U	
R804102-03			7078-003	Lab Control Sample	ok	
R804102-04			7078-004	Method Blank	U	
R804102-05			7078-005	Duplicate (R804102-02)	-	U

Nominal values and limits from method RDLs (pCi/g) 12.0
216-A-30 Crib Sampling

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6150-020 2σ prep error 13.2 % Reference Lab Notebook #6150, pg. 15																
R804102-01			B1TH06	0.533	1.00			98		50			50	05/16/08	05/20	GRB-221
R804102-02			B1V2L5	0.518	1.00			98		50			56	05/16/08	05/21	GRB-202
R804102-03			Lab Control Sample	0.552	1.00			94		50				05/16/08	05/19	GRB-220
R804102-04			Method Blank	0.518	1.00			97		50				05/16/08	05/21	GRB-203
R804102-05			Duplicate (R804102-02)	0.512	1.00			100		50			54	05/16/08	05/19	GRB-222
Nominal values and limits from method				12.0	1.00			20-105		50			180			

PROCEDURES
REFERENCE SPP-062 Sample Aliquoting, rev 0
CP-431 Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.527 ± 0.032
YIELD 97 ± 4

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/08

00000019

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

Test H Matrix SOLID
SDG 7078
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 33677
Contract SDG H3688

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 6150-020						
R804102-01			7078-001	B1TH06	U	
R804102-02			7078-002	B1V2L5	U	
R804102-03			7078-003	Lab Control Sample	ok	
R804102-04			7078-004	Method Blank	U	
R804102-05			7078-005	Duplicate (R804102-02)	-	U
Nominal values and limits from method				RDLs (pCi/g)	400	
216-A-30 Crib Sampling						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6150-020			2σ prep error 10.0 %	Reference Lab Notebook #6150, pg. 15												
R804102-01			B1TH06	3.65	0.470			100		50			46	05/14/08	05/16	LSC-007
R804102-02			B1V2L5	4.25	0.413			100		50			51	05/14/08	05/16	LSC-007
R804102-03			Lab Control Sample	5.45	0.300			100		50				05/14/08	05/16	LSC-007
R804102-04			Method Blank	5.71	0.300			100		50				05/14/08	05/16	LSC-007
R804102-05			Duplicate (R804102-02)	4.18	0.410			100		50			51	05/14/08	05/16	LSC-007
Nominal values and limits from method				400	0.300					25			180			

PROCEDURES REFERENCE TRITIUM_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 4.65 ± 1.77
YIELD 100 ± 0

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/08

00000020

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

Test NI L Matrix SOLID
SDG 7078
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 33677
Contract SDG H3688

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63
Preparation batch 6150-020					
R804102-01			7078-001	B1TH06	U
R804102-02			7078-002	B1V2L5	U
R804102-03			7078-003	Lab Control Sample	ok
R804102-04			7078-004	Method Blank	U
R804102-05			7078-005	Duplicate (R804102-02)	- U
Nominal values and limits from method				RDLs (pCi/g)	30.0
216-A-30 Crib Sampling					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6150-020			2σ prep error 11.2 %				Reference Lab Notebook #6150, pg. 15									
R804102-01			B1TH06	3.25	0.500			87	50				50	05/20/08	05/20	LSC-004
R804102-02			B1V2L5	3.51	0.500			82	50				55	05/20/08	05/20	LSC-004
R804102-03			Lab Control Sample	3.01	0.500			95	50					05/20/08	05/20	LSC-004
R804102-04			Method Blank	2.93	0.500			97	50					05/20/08	05/20	LSC-004
R804102-05			Duplicate (R804102-02)	3.47	0.500			84	50				55	05/20/08	05/20	LSC-004
Nominal values and limits from method				30.0	0.500			30-105	25				180			

PROCEDURES
REFERENCE NI63_LSC
SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7
CP-280 Nickel-63 Purification, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 3.23 ± 0.524
YIELD 89 ± 13

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/08

00000021

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

Test SE L Matrix SOLID
SDG 7078
Contact Melissa C. Mannion

LAB METHOD SUMMARY

SELENIUM 79 IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 33677
Contract SDG H3688

RESULTS

LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	CLIENT SAMPLE ID	Selenium-79	
Preparation batch 6145-169						
R803100-08			7063-008	Method Blank	U	
R804102-01			7078-001	B1TH06	U	
R804102-02			7078-002	B1V2L5	U	
R804102-06			7078-006	Duplicate (R804102-02)	-	U

Nominal values and limits from method RDLs (pCi/g) 10.0
216-A-30 Crib Sampling

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6145-169 2σ prep error 11.2 % Reference Lab Notebook #6145, pg. 169																
R803100-08			Method Blank	3.36	0.500			78		50				07/09/08	07/09	LSC-004
R804102-01			B1TH06	2.86	0.500			91		50			100	07/09/08	07/09	LSC-004
R804102-02			B1V2L5	3.24	0.500			78		50			105	07/09/08	07/09	LSC-004
R804102-06			Duplicate (R804102-02)	3.21	0.500			79		50			105	07/09/08	07/09	LSC-004
Nominal values and limits from method				10.0	0.500			20-105		100			180			

PROCEDURES REFERENCE SE79_SEP_IE_LSC
SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7
RP-340 Selinium-79 in Solids and Water, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 3.17 ± 0.430
YIELD 82 ± 13

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 07/16/08

00000022

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3688

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3688

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG_H3688

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG_H3688

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3688

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 33677
Case no SDG H3688

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 33677
Case no SDG H3688

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3688

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3688

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3688

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 33677
Case no SDG H3688

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

SDG 7078
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG_H3688

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

SDG 7078
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 33677
Case no SDG H3688

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 07/16/08

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-043-151 PAGE 1 OF 1

COLLECTOR NCO Sampler WEIR, KAULA, HERRICK	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8N
SAMPLING LOCATION C5941, I-049	**PROJECT DESIGNATION** 216-A-30 Crib Sampling H3688 (7078)		**SAF NO.** F08-043	**AIR QUALITY** ☐
ICE CHEST NO. GRP-03-11	**FIELD LOGBOOK NO.** HNF-N-565	**ACTUAL SAMPLE DEPTH** 122.5' - 125'	**COA** 123215ES20	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO Eberline Services	**OFFSITE PROPERTY NO.** SEE PTR		**BILL OF LADING/AIR BILL NO.** SEE PTR	

DATA TURNAROUND 45 Days / 45 Days

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
Radioactive tie to B1TDB8

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1TH06	SOIL	3-31-08	1020	X

02E75

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D. Weir / D. Weir	3-31-08 / 1104	MO 529 FRIDGE	3-31-08 / 1104
MO 509 Ref	4-15-08	D. Parchen	4-15-08
D. Parchen	4-15-08	MO 275 RA #3	4-15-08
MO 275 RA #3	4-16-08	D. Parchen	4-16-08
D. Parchen	4-16-08	Fed Ex	
Fed Ex			04/17/08 09:30

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1)Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F08-043-179	PAGE 1 OF 1
COLLECTOR NCO Sampler [illegible], Hadyick	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8N **DATA TURNAROUND**
SAMPLING LOCATION C5941, I-SSP-003	**PROJECT DESIGNATION** 216-A-30 Crib Sampling H3688 (7078)		**SAF NO.** F08-043	**AIR QUALITY** ☐ **45 Days / 45 Days**
ICE CHEST NO. GRD-05-0118	**FIELD LOGBOOK NO.** HNF-N-585-2	**ACTUAL SAMPLE DEPTH** 105.5'-108.0'	**COA** 123215ES10	**METHOD OF SHIPMENT** FEDERAL EXPRESS
SHIPPED TO Eberline Services	**OFFSITE PROPERTY NO.** See PTR		**BILL OF LADING/AIR BILL NO.** See PTR	

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
Radioactive tie to B1V2L2

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1V2L5	SOIL	3-26-08	1415	X	
				024875	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[illegible]	3-26-08/1500	MO509 FRIDGE	3-26-08/1500
MO 509 Refrig	4-15-08/1200	D. Parch	4-15-08
D. Parch	4-15-08/1500	MO 745 Refrig #3	4-15-08/1500
MO 745 Refrig #3	4-16-08/0800	D. Parch	4-16-08/0800
D. Parch	4-16-08/1500	Fed Ex	
Fed Ex		[illegible]	04/17/08 09:30

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1)Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

LABORATORY SECTION	**RECEIVED BY**	**TITLE**	**DATE/TIME**
FINAL SAMPLE DISPOSITION	**DISPOSAL METHOD**	**DISPOSED BY**	**DATE/TIME**